Message

From: Gwinn, Maureen [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=4BDC5237A5C440A7B664518E23EB5647-GWINN, MAUREEN]
Sent: 4/7/2020 4:22:02 PM
To: Gentry, James [Gentry.James@epa.gov]; Hiscock, Michael [Hiscock.Michael@epa.gov]
CC: LaVay, Maggie [LaVay.Maggie@epa.gov]; Deener, Kathleen [Deener.Kathleen@epa.gov]
Subject: RE: Animal studies under CAA and CWA
Attachments: GAO Report on Alternatives FINAL 092019.pdf

James,

You are correct – there was a GAO report a year ago on this. Maureen Hingeley was the lead. I'm attaching the final report from late September 2019, just FYI.

This is tied into the NAM workplan for the Agency following the Administrator memo. We are tasked with putting together a baseline/metric for animal use in-house and what is funded by the Agency. This was just sent to the IOAA on Friday for review, so likely the questions came from that. There is nothing specific to grants in the current write-up, but that may change.

Ex. 5 Deliberative Process (DP)

Sorry to not be much help.

Maureen

Maureen R Gwinn PhD DABT
Office of Research and Development
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Ex. 6 Personal Privacy (PP)

From: Gentry, James <Gentry.James@epa.gov>
Sent: Tuesday, April 7, 2020 10:35 AM
To: Hiscock, Michael <Hiscock.Michael@epa.gov>
Cc: LaVay, Maggie <LaVay.Maggie@epa.gov>; Deener, Kathleen <Deener.Kathleen@epa.gov>; Gwinn, Maureen <gwinn.maureen@epa.gov>
Subject: RE: Animal studies under CAA and CWA

Ex. 5 Deliberative Process (DP)

Looping in Maureen, because I think I sat in on a call where she participated in this workgroup.

From: Hiscock, Michael <Hiscock.Michael@epa.gov>
Sent: Tuesday, April 07, 2020 10:28 AM
To: Gentry, James <Gentry.James@epa.gov>
Cc: LaVay, Maggie <LaVay.Maggie@epa.gov>; Deener, Kathleen <Deener.Kathleen@epa.gov>
Subject: RE: Animal studies under CAA and CWA

Hi all,

I took Rusty off. ERB currently has 14 grants with some sort of animal subjects. Below is a summary and attached is more information.

1. R835796 Oregon State University
a. Researchers plan to expose embryonic zebrafish to FRCs and observe fish morphology and behavior for signs of toxicity as they grow to adulthood. Zebrafish data will enable researchers to develop new tools for manufactures and risk assessors to determine the likelihood that a new compound is safe.
2. R835797 University of California – Santa Barbara
a. Researchers applied dioxin-like chemicals (DCLs) to the Atlantic killifish to understand the toxic mechanism of DCLs. Researchers developed a sampling regime for following changes in gene expression in experiments on individual *Daphnia* fish exposed to fly ash; *Daphnia* were also exposed to waterborne silver nanoparticles to parametrize and test a model underpinning an individual based population model.
3. RD835580 Arizona State University
a. Researchers focused on advancing and applying use of zebrafish embryo high-throughout testing platforms. This included evaluating toxicity outcomes when exposing embryonic zebrafish to oxygen-functionalized MWCNTs and chemicals used in personal care products.
4. R835736 Vanderbilt University
a. MostVPROMPT Projects will use exclusively human cells in their OCMs, but Project 2 on Limb Development does have plans to build OCMs using mesenchymal cells from embryonic rat limb buds and can then also assess the confounding strength of cross-species discordance.
5. R835902 Health Effects Institute
a. For one project laboratory rats were exposed for their lifetime (up to 30 months) to emissions of a 2007-compliant engine. Results evaluated the health effects of new technology diesel engines compared to older models, which had much more significant health impacts relating to emissions.
6. R835798 Michigan State University
a. To identify critical genes and pathways predictive of adverse neurobehavior outcomes, researchers exposed three different fish species to PCB126 and methylmercury and applied network inference methods using RNA sequencing and metabolomics and physiological endpoints. Behavior of predictive genes and pathways was compared across species, and an individual-based model predictive of growth and survival was developed.
7. R835799 Oregon State University
a. Researchers are seeking to determine the effects of bifenthrin and levonorgestrel on *Menidia beryllina* across the molecular, organismal, and population levels, and across three generations. A mathematical model of fish population dynamics will scale up experimental results to predict the effects of contaminant exposures on the persistence of *Menidia* populations and on the persistence of other species.
8. R835802 Texas A & M University
a. Contributing to modeling cardiovascular disease and testing for chemical hazards, researchers conducted a population-based experiment design utilizing a panel of human iPSCs and mouse Collaborative Cross, which can assess variation in toxicity to better characterize uncertainties.
9. RD836939 University of Vermont

a. To test the links between HABs and multiple components of human well-being, researchers analyzed fatty acid and toxin content of fish species, along with sampling ambient aerosols and other approaches. Researchers hope to partner with community partners to determine HAB impacts on communities, and how communities respond when presented with increased data on HABs.

10. R836152 Johns Hopkins University

a. In Project 3 of this grant, researchers will quantify PM-induced airway hyperresponsiveness and inflammation in lean and DOI wildtype and IL-6 knockout mice. Additionally researchers will quantify the PM-induced AHR and inflammation in DOI mice with recurrent upper airway obstruction during sleep caused by genetically induced excessive tongue adiposity. The goal of Project 3 is to determine the role of obesity in biological responses to particulate matter in mice.

11. R836159 University of California – Berkeley

a. As one of their subprojects, researchers will examine casual mechanisms in a mouse model with a propensity to develop a mouse-analog of acute lymphoblastic leukemia. This will further understanding of what causes, and how to prevent acute lymphoblastic leukemia development in human children.

12. R835738 University of Washington

a. Researchers are working to develop innovative organotypic culture systems to better evaluate the potential for cellular and organ toxicity following exposure to Engineered Nanomaterials within an adverse outcome pathway model. To this end researchers evaluated the utility of glutathione deficient immortalized mouse hepatocytes derived from a mouse model as a reporter system for a model chemical oxidant and AgNP-induced oxidative stress. Additionally, researchers reports their baseline characterization of normal development with a life stage context and are comparing an in vitro and in vivo developmental timeline between rat and mouse systems, including the mechanisms of cytotoxicity at different developmental stages. Researchres also utilized an in vitro 3D organotypic mouse midbrain micromass culture system to examine adverse effects of AgNps.

13. R839481 Oregon State University

a. Researchers exposed embryonic zebrafish to 100 PFASs and assessed them for adverse phenotypic and behavioral effects. Mice as well were exposed to PFASs that are toxic embryonic zebrafish and were assessed for developmental immunotoxicity. Both experiments helped create pharmokinetic models that can explain and predict the concentrations of PFASs in the organs of mice and adult zebrafish as a function of exposure dose and chemical structure.

14. R839503 Oregon State University

a. To help decrease the number of live animals needed for testing pollutant impacts in marine/estuarine ecosystems, researchers quantified internal exposure concentrations of model developmental toxicants across a salinity gradient during in vivo testing. Researchers also used a combination of genomic tools and demographic modeling in a "middle-out" approach that links the phenotypic anchors measured in vivo to biomarker candidates and population-level outcomes.

Michael Hiscock, Branch Chief
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Funding Opportunities

From: Thomas, Russell <Thomas.Russell@epa.gov>
Sent: Tuesday, April 07, 2020 10:24 AM
To: Gentry, James <Gentry.James@epa.gov>; Hiscock, Michael <Hiscock.Michael@epa.gov>
Cc: LaVay, Maggie <LaVay.Maggie@epa.gov>; Deener, Kathleen <Deener.Kathleen@epa.gov>
Subject: RE: Animal studies under CAA and CWA

James,

Apologies for not being clear. I certainly understand that the people receiving the award would be bound by the AWA. Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Rusty

From: Gentry, James <Gentry.James@epa.gov>
Sent: Tuesday, April 7, 2020 10:19 AM
To: Thomas, Russell <Thomas.Russell@epa.gov>; Hiscock, Michael <Hiscock.Michael@epa.gov>
Cc: LaVay, Maggie <LaVay.Maggie@epa.gov>; Deener, Kathleen <Deener.Kathleen@epa.gov>
Subject: RE: Animal studies under CAA and CWA

Hi Rusty, hope you're doing well.

Research grants involving animal testing are bound by the terms and conditions in their grant award (see below). These terms would apply to anyl grants involving animal testing, not just those related to CAA or CWA.

The recipient agrees to comply with the Animal Welfare Act of 1966 (P.L. 89-544), as amended, 7 USC 2131- 2156. Recipient also agrees to abide by the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals used in Testing, Research, and Training." (Federal Register 50(97): 20864-20865. May 20,1985). The nine principles can be viewed at https://olaw.nih.gov/policies-laws/phs-policy.htm. For additional information about the Principles, the recipient should consult the Guide for Care and Use of Laboratory Animals, prepared by the Institute of Laboratory Animal Resources, National Research Council and can be accessed at: http://www.nap.edu/readingroom/books/labrats/.

Note: Looks like the NRC's guide linked above is no longer available.

Hope this is helpful, but let us know if we can help any further.

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James E. Gentry
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Office of Science Advisor, Policy & Engagement (OSAPE)
Office of Research & Development, U.S. EPA
202-564-4309

From: Thomas, Russell <Thomas.Russell@epa.gov>
Sent: Tuesday, April 07, 2020 9:02 AM
To: Gentry, James <Gentry.James@epa.gov>; Hiscock, Michael <Hiscock.Michael@epa.gov>
Subject: Animal studies under CAA and CWA

James and Mike,

Jennifer asked that I reach out to you. We have been drafting the NAM work plan that was requested by the Administrator in his September memo calling for the replacement of animal studies by 2035. Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thank you in advance,

Rusty

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